



JON M. HENTSMAN, JR.

Governor

GARY R. HERBERT

Executive Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER

Deputy Director

Division of Wildlife Resources

JAMES E. KARPWITZ

Director

January 31, 2008

Dear Utah Black Bear Hunter,

Congratulations on obtaining a Utah black bear permit for the 2008 season. All 2008 bear hunts require a mandatory orientation course. The enclosed packet includes a copy of the black bear orientation course, a worksheet and a business reply envelope. Please complete the worksheet, then send it back in the provided business reply envelope or complete and submit the online worksheet that can be found at www.wildlife.utah.gov/bear (**submitting the online worksheet will expedite the process**). Once we receive the completed worksheet, we will mail your permit.

The information in this packet should improve your ability to differentiate between male and female bears. Our goal is to encourage hunters to select male bears for harvest over females. Remember it is illegal to harvest a cub or a female accompanied by cubs.

Please make sure that your name is legible to avoid any delays in receiving your permit. If you have any questions contact call 538-4844 for draw permits and 538-4815 for conservation and convention permits.

Sincerely,

Kevin Bunnell, Ph.D.
Mammals Program Coordinator

enclosure



JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah

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Division Director

January 31, 2008

Dear Utah Black Bear Hunter,

Congratulations on your successful application to obtain a 2008 bear permit. We hope you have a successful and enjoyable hunt. The purpose of this letter is to request that you help us by collecting a femur from your harvested bear. Collected femurs will be used in an ongoing study trying to better understand the physiological adaptations to hibernation. There is considerable human interest in the biological mechanisms black bears possess to diminish the effects of osteoporosis during the disuse period of hibernation (5–6 months). A previous study showed that structural properties of bear tibias were not compromised with age (McGee et al. 2004); however, femurs have been shown to lose structural integrity more dramatically than tibias in other species (Shaw et al. 1987). We propose to further investigate if structural properties of black bear femurs are affected by age as preliminary data has suggested (McGee et al. 2005). The results of this research may ultimately lead to advances in human medicine. This work will be done in conjunction with Dr. Seth W. Donahue and Meghan E. McGee of the Department of Mechanical Engineering, Michigan Technological University, Houghton, MI. To help accomplish our objectives, we request that you remove a femur (the single long bone connected to the hip) from your bear and turn it in to one of the regional offices when your bear is checked. If you have questions, please contact Dr. Hal Black at the number below. Thank you in advance for your cooperation.

Sincerely,

Dr. Kevin D. Bunnell
Mammals Program Coordinator
Utah Division of Wildlife Resources

Dr. Hal L. Black
Zoology, Brigham Young University
Ph. (801) 422-4553
Email: hal_black@byu.edu

Literature Cited

McGee, M. E., H. L. Black, J. Auger, and S. W. Donahue. 2005. Cross-sectional and whole bone structural properties of bear femurs are not compromised by annual periods of disuse. Abstract. Bioengineering Conference, Vail Cascade Resort and Spa, Vail, Colorado.

McGee, M. E., K. B. Harvey, and S. W. Donahue. 2004. Whole bone bending properties of black bear tibias are not compromised by annual periods of disuse. Proceedings, 2004 BMES Annual Meeting, Biomedical Engineering Society, Philadelphia 1:938.

Shaw, S. R., R. F. Zernicke, A. C. Vailas, D. DeLuna, D. B. Thomason, and K. M. Baldwin. 1987. Mechanical, morphological and biochemical adaptations of bone and muscle to hindlimb suspension and exercise. *Journal of Biomechanics* 20:225–234.



SPRING & FALL BEAR HUNTER ORIENTATION COURSE



Utah Division of Wildlife Resources

Kevin Bunnell
Wildlife Mammals Program Coordinator

PURPOSE OF THIS ORIENTATION

To improve the ability of Utah's Bear hunters to differentiate between male and female bears, and to encourage hunters to select male bears for harvest.

BACKGROUND (1)

- Utah held a spring bear hunt through 1992. During 1990-1992, an average of 19 bears were killed each year for preying on livestock.
- In the years following closure of the spring hunt, the number of bears killed for livestock depredation increased dramatically. During 1993-1999, following the closure of the spring bear hunt, an average of 30 bears were killed each year for preying on livestock.

BACKGROUND (2)

- A high of 70 bears were killed for livestock damage in 2000, rivaling the sport harvest of 75 bears.
- Male bears are more likely to prey on livestock than females.

BACKGROUND (3)

- The fall-only seasons of 1993-1999 produced harvests that were 40% females. This was considerably greater than during the limited entry spring-fall seasons of 1990-1992, when only 20% of the harvest were females.

BACKGROUND (4)

- Although bears are long-lived, they are slow to reproduce. Managers that wish to maintain or increase cub production within a bear population favor hunting regulations that minimize the harvest of adult females.
- In 2001, an experimental spring bear hunt began on 3 of Utah's bear management units. The experiment will run for 5 years, through 2005.

PURPOSE OF UTAH'S EXPERIMENTAL SPRING SEASON

- The experimental spring season will allow the Utah Division of Wildlife Resources (UDWR) to determine if spring bear harvest can: (1) Reduce the number of bears killed to protect livestock, (2) reduce the number of livestock killed or damaged by bears, & (3) reduce the percentage of females in the annual harvests.
- To ensure a fair comparison of spring and fall seasons, the Wildlife Board has mandated that all Utah bear hunters undergo this annual orientation program prior to obtaining licenses.

KEYS TO DETERMINING SEX AND AGE OF BEARS

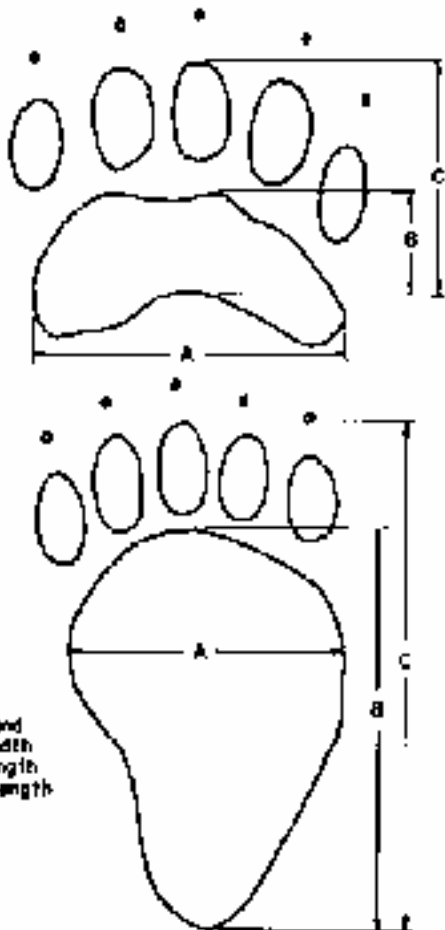
- Tracks
- Physical Characteristics
- Group Size
- Track size may be the best indicator of large male bears.
- Physical Characteristics do not always provide a clear indication of the sex/age category of a bear – practice is required!
- Behavior – particularly group size – can provide important clues to the sex/age of individual bears, but is not foolproof.

TRACKS



- Young, growing bears have smaller feet, and leave smaller tracks than adults.
- Adult males have larger feet than females. The front foot tracks of adult male bears are usually wider than 4.5 inches.
- The front foot tracks of adult female bears rarely exceed 4.5 inches in width.
- Front foot tracks of subadult bears are generally less than 4.5 inches wide.
- To selectively harvest adult male bears, hunt in areas where tracks larger than 4.5 inches are encountered.

BEAR TRACK MEASUREMENTS



Measure pad width
("A") of front print

In Utah 42% of males had
pad widths equal to or
greater than $4\frac{3}{4}$ inches

Only 7% of females had
front pad widths greater than
 $4\frac{1}{2}$ inches

PHYSICAL CHARACTERISTICS (1)

- Remember that ALL bears appear larger than they actually are.
- Adult male bears are about 50% larger than adult females.
- Adult bears appear bulky compared to the thin-bodied, long-legged look of yearlings and subadults.

PHYSICAL CHARACTERISTICS (2)

- Mature males have rounded heads and necks that appear short. Their ears look short and rounded, and are set far apart.
- Females and young bears usually have thinner necks and snouts, and appear to have long legs in proportion to their bodies.
- Females and young bears have ears that appear large and set close together.



Mature male, showing blocky head, small-appearing ears, stocky body. 3 1/2 YO (225 lbs) ♂



Adult Female: Note close-set ears and thin nose. 3 1/2 YO (100 lbs) ♀



Sub adult male. Note large ears, long legs

PHYSICAL CHARACTERISTICS (3)

- The sex of bears in trees can often be determined by examining their genitals using binoculars or a rifle scope.
- Yearling bears are often difficult to differentiate from cubs of the year. A yearling will have proportionally longer legs, neck and snout than a cub of the year.



Yearling



Cubs in late July

RELATIVE SIZE OF CUBS AND YEARLINGS



Adult female with cub

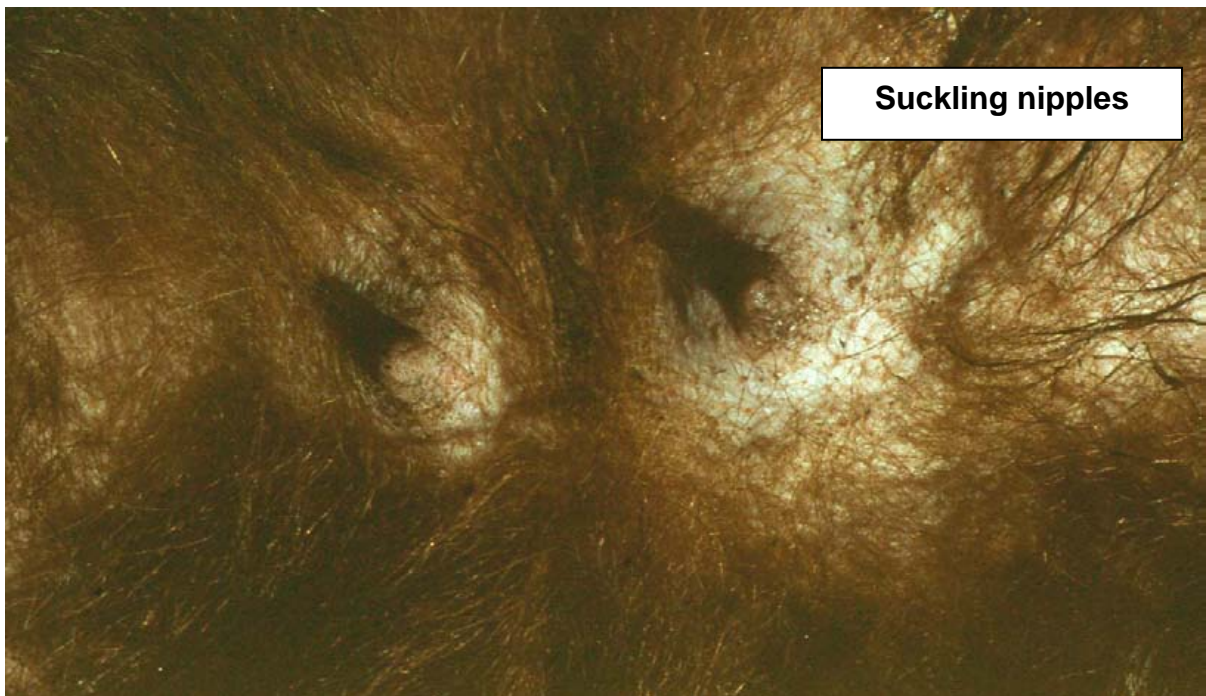
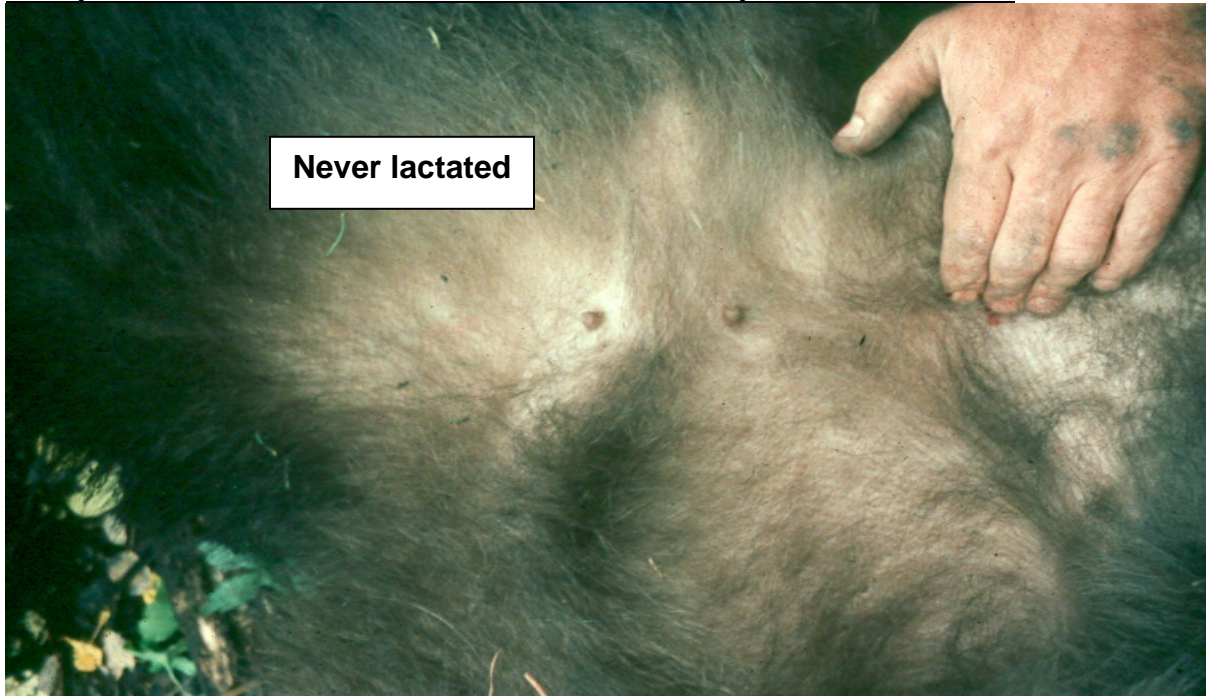


Adult female with yearling

PHYSICAL CHARACTERISTICS (4)

- During the spring season, females with cubs will show evidence of nursing. Their teats will be enlarged, and the surrounding hair is usually missing.
- If the teats of a female in a tree are large enough to be readily observed from below, it probably has nursing cubs nearby. Cubs may nurse as late as August-September.

Comparison of teats from females of different reproductive status.



GROUP SIZE

- Bears are usually loners. If you encounter 2 or more bears traveling together, you may be viewing a family group (female with offspring).
- Family groups can be composed of an adult female with cubs (born early in the same year), or year-old offspring (yearlings).
- Note: Females will often “park” cubs, leaving them in secure trees, then traveling alone to feed nearby. Therefore, a lone bear could still be a female with young cubs, especially during the spring season.



GROUPS (SPRING)

- During the spring hunt, hunters may encounter family groups comprised of adult females and yearling offspring (legal to take or pursue), or adult females accompanied by cubs of the year (illegal to take or pursue).

GROUPS (FALL)

- A group of bears encountered during the fall months is almost certainly comprised of an adult female accompanied by cubs. None of the group is legal game to take or pursue.
- Adult bears will sometimes feed close together to share food concentrations, such as acorns in oak stands. When hunting where foods are concentrated, extra care must be taken to determine the age and composition of bears.

DEN EMERGENCE (SPRING)

- Bears in Utah emerge from their dens over a 6-week period, from the third week in April through the fourth week in May.
- On average, males emerge about 1-2 weeks prior to females.
- The peak week of emergence for males is the last week in April.
- Most females emerge during the first 2 weeks of May.

DEN ENTRY (FALL)

- In Utah, bears will generally stop feeding and enter dens in late October through mid-November.
- During years of abundant fall foods, such as acorns, bears usually continue to move and feed for 3-4 additional weeks. In these years, bears will enter dens in mid-November through December.
- Although pregnant females usually enter dens about 1 week prior to other females and males, bears in Utah enter dens over a period of 6 weeks or more.
- Therefore, hunters should not consider date to be a reliable predictor of the sex of bears encountered during the fall months.

SUMMARY

- To selectively hunt mature male bears, rely on a combination of information.
- Large tracks (over 4.5 inches wide) are good indicators of mature male bears.
- Adult bears usually are stocky, with blocky features, including ears, necks, and legs that appear short relative to their bodies.
- Be aware that most groups of bears are family groups of adult females with offspring.

Utah Black Bear Hunter Orientation - Worksheet

Name (print): _____

Phone No.: _____

On the following pages there are 7 photographs of bears of various ages and both sexes. View each numbered photo and indicate the age and sex combination for each photo by circling your choice. Once complete review the answer sheet to determine how you did.

Remember this exercise is to improve your ability to identify bears of various ages and differentiate the sex of bears based upon physical characteristics. When complete sign and date below and return in the business reply envelope provided. Once received your permit will be mailed to you.

Photo #1	Cub	Yearling	Subadult	Adult	Male	Female
Photo #2	Cub	Yearling	Subadult	Adult	Male	Female
Photo #3	Cub	Yearling	Subadult	Adult	Male	Female
Photo #4	Cub	Yearling	Subadult	Adult	Male	Female
Photo #5	Cub	Yearling	Subadult	Adult	Male	Female
Photo #6	Cub	Yearling	Subadult	Adult	Male	Female
Photo #7	Cub	Yearling	Subadult	Adult	Male	Female

By signing I state that I have reviewed the mandatory orientation course and completed this worksheet required to hunt black bear in Utah.

Signed: _____ Date: _____

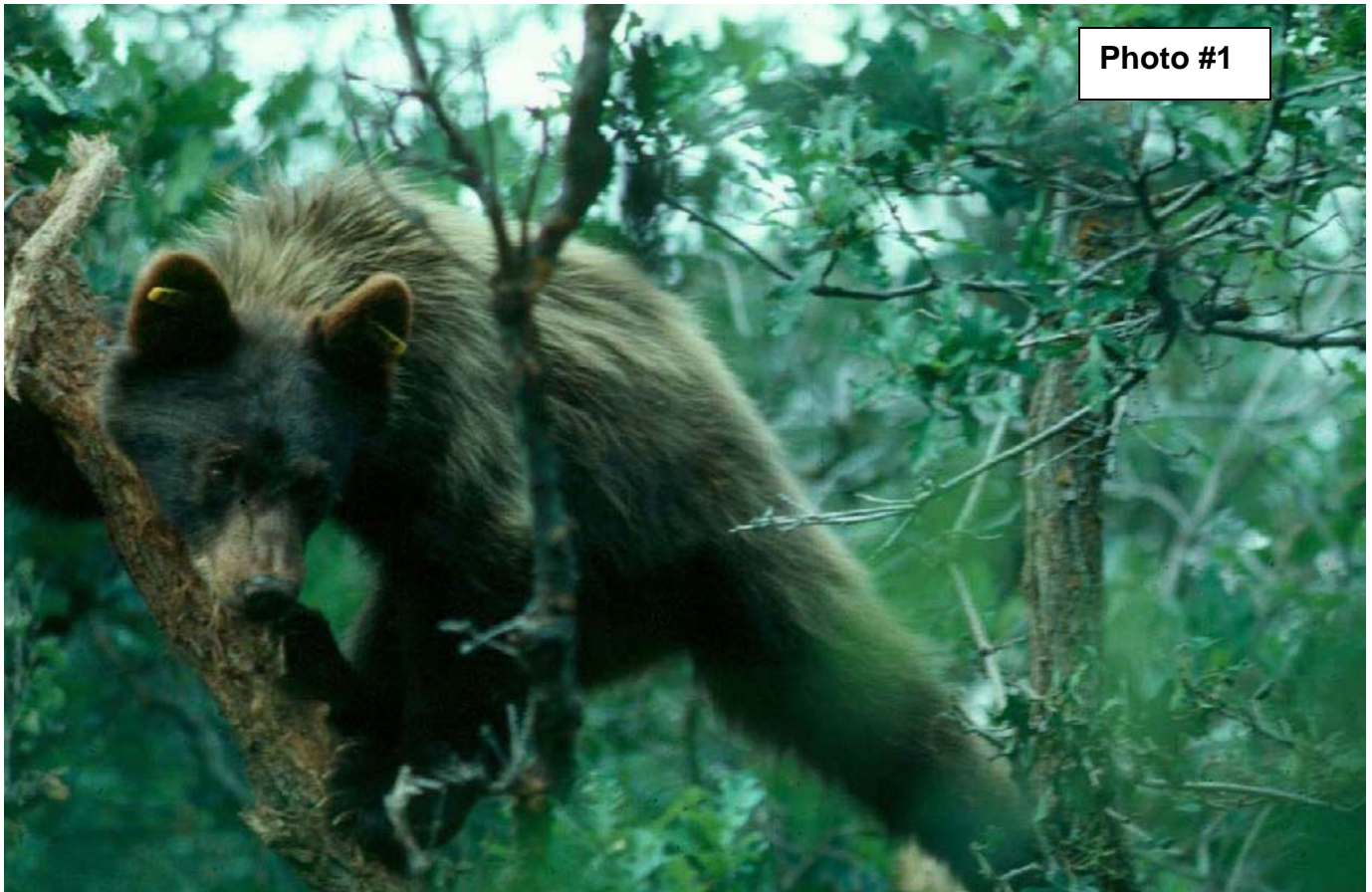


Photo #1



Photo #2

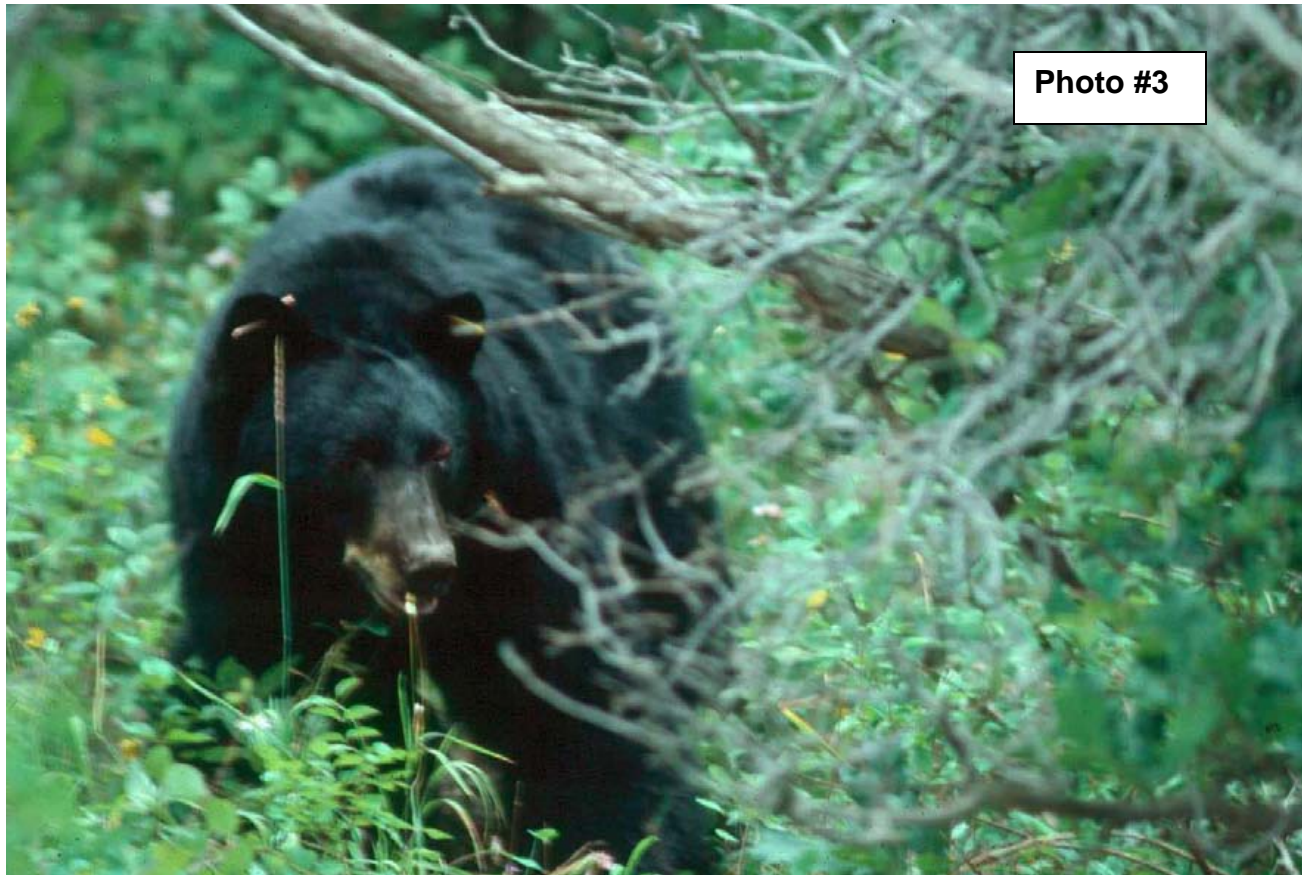


Photo #3



Photo #4



Photo #5



Photo #6

Photo #7

